Volume 2003, Issue 7 October, November, December

Idaho Department of Fish and Game

Lake Pend Oreille Predation Research Quarterly Report

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Autumn Tracking Efforts for Lake Trout and Bull Trout

During this past quarter we tracked lake trout and bull trout to determine autumn movement patterns and depth utilization of these predators in Lake Pend Oreille. This information was useful because we were able to help guide the commercial trap net fishermen to effective netting areas. We also gained valuable insight on autumn movements within the lake on federally listed bull trout. Tracking began on 23 September and ended on 21 November and was performed at least once each week during daylight hours only. We were able to locate all 9 of our sonic tagged lake trout and determined autumn habitat use for this species (see below). Bull trout, on the other hand, were only found after 27 October and we were only able to locate 3 of our 5 sonic tagged fish. Likely, bull trout were missing from the lake because they were in tributary streams, spawning. One of the three located bull trout was consecutively found very close to the Hope Boat Basin public launch site. Since this fish has not moved, we suspect that it is dead or its tag was expelled in this location.

Habitat Use of Lake Trout During the Fall of 2003

During the fall of 2003 (23 Sept. through 21 Nov.), 9 lake trout were monitored on a weekly basis to determine their lake habitat use. In total, 43 individual depth observations were recorded. Most of the fish (74% of observations) were found in benthic or near-bottom habitats while the remainder (26%) of the observations were recorded in pelagic or open water areas (Fig. 1). Average depth for benthic lake trout was 95 ft and these fish were generally found within 400 ft of the shoreline. Pelagic fish utilized an average depth of approximately 120 ft and were generally found at least a 1/2 mile off-shore. Benthic habitat use by fall lake trout is consistent with other seasons (winter, spring, and summer) in Lake Pend Oreille. based on our tracking data. The preference for lake trout to mainly utilize near shore benthic areas should be to our advantage as we move towards acquiring a lake trout population estimate with deep water trap nets.

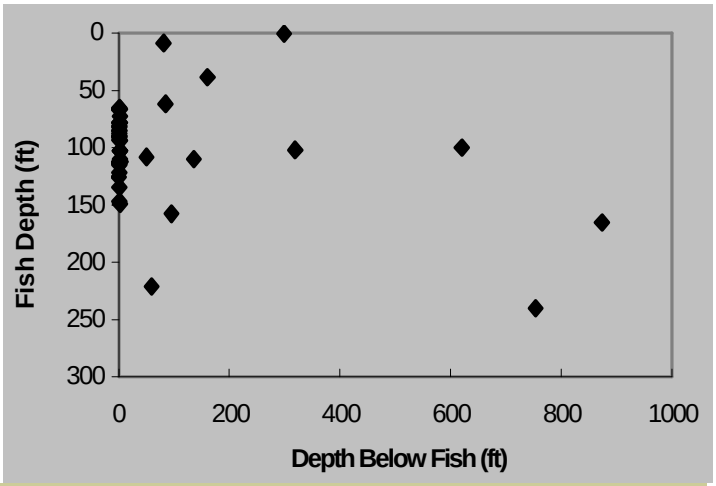

Figure 1. Daytime habitat use of 9 sonic tagged lake trout during the fall of 2003.

This quarterly report contains preliminary data and conclusions that are not citable.

Deep Water Trap Netting Efforts

During the past quarter, we began looking at the effectiveness of using large deep water trap nets to capture lake trout to determine the size of the lake trout population in Lake Pend Oreille. We began capturing fish on 1 October 2003 and by the end of the quarter (31 December 2003) we had marked 809 and recaptured 48 lake trout. Due to the size of the trap nets (Fig. 2) and the shape and depth of the lake, we have been limited to only a few places where we can effectively fish the trap nets. Six of the nine trap nets are located in the northern half of the lake with the remaining three in the southern end. We will continue to mark lake trout and collect recapture information so that an accurate population estimate can be made.

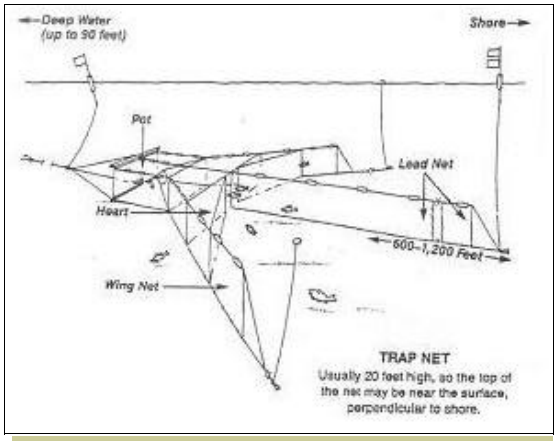

Figure 2. Image of the deep water trap nets used in Lake Pend Oreille.

We are tagging lake trout using both fin clips and spaghetti tags (Fig. 3). We are using both methods to ensure we can identify the location of where the fish was tagged. This will give us individual fish movements around the lake and we will also be able to estimate tag loss.

The average size of lake trout captured with the trap nets is 27" and the largest fish we sampled has been 40.5". To reduce handling stress on captured lake trout we do not weigh the fish before we release them, therefore, we do not have a weight for sampled fish. Although our recapture numbers are low we have seen good movement by lake trout around the lake. For example, we had one fish that was marked near Warren Island (north end) and recaptured in the Cape Horn net (south end). We also had one fish that has been recaptured twice. This fish was originally marked before 25 Nov. (when we started marking fish with spaghetti tags) at the Thompson Pt. net and recaptured the first time on December 2nd in the Cape Horn net. It was released from the Cape Horn net and was recaptured on December 10th in the Garfield Bay net.

We have captured several other species with the trap nets as well. We have captured bull trout (72), rainbow trout (1), brown trout (1), lake whitefish (20,222), northern pikeminnow (73), largescale sucker (69), peamouth (10), and kokanee (1). The biggest surprise are the number of lake whitefish we have sampled. We captured several whitefish larger than the current state record (3 lb. 5 oz.). The average size of the lake whitefish is 16" and approximately 2 lbs.

Figure 3. A Pend Oreille lake trout marked with a spaghetti tag near its dorsal fin. Each tag is individually marked and color coded.

The trap nets are designed to be a "live entrapment" gear, however, we have had some mortality. To date, we have lost 6 lake trout, 7 bull trout and 1,341 lake whitefish. Many of the mortalities have been salvaged to collect biological data (such as age, growth, and food habits) and given to area food banks.

We are currently trying to modify nets and identify new locations to set the trap nets to increase catch rates and to continue marking fish for a population estimate. By the end of our sampling period (31 March) we hope to have an accurate population estimate for the lake trout.

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Funding for this study is provided by Bonneville Power Administration.

Bull Trout Spawning Migration and Autumn Habitat Use

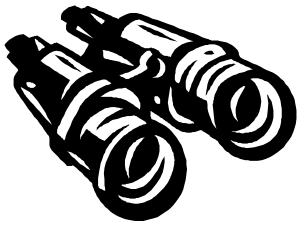
During the summer of 2003 we tracked 5 bull trout to determine their depth utilization when the lake was stratified. Towards the end of August, our tagged bull trout were starting to concentrate near lake tributary streams. By the first week of September we were unable to locate any of the bull trout we were tracking in August. Tracking continued throughout September and into October and no bull trout were found until the end of October (the first was found on 27 Oct.). By the beginning of November, 2 bull trout were found and were concentrated in the northern end of the lake, near the "islands." During fall sampling, these were the only bull trout we found that were alive (one was suspected to be dead near the Hope Boat Basin). Two of the five bull trout were never located in the lake system and it is unknown if those fish ever emigrated out of their spawning tributaries.

Bull trout during the fall utilized depths between 40 and 115 ft with the average being about 65 ft. We were only able to obtain 5 habitat observations during November but on 3 of the 5 occasions, bull trout were found very close to the bottom near the shoreline. For the remainder of time, bull trout were in pelagic areas.

Figure 4. Surgery wound on lake trout.

Recaptured Sonic-Tagged Lake Trout

On 14 November the trap netting crew captured one of our sonic tagged lake trout at the Sheepherder Pt. net. The fish was identified by the scar on its abdomen from the incision made by researchers to implant the sonic tag (Fig. 4). The tag was implanted on 4 June and the fish was released near Pearl Island. The fish was brought back to our office to examine the surgery wound. The wound was sealed completely and no internal damage was observed. To date this is the only sonic tagged fish captured in the trap nets.



Looking for past reports????

Access the following web address for all past issues of Lake Pend Oreille Predation Research reports:

http://www2.state.id.us/fishgame/common/technical/fisheries.cfm

Activities for Next Quarter

During the next quarter we will determine a summer 2003 population estimate for pelagic predators > 16" based on hydroacoustics. With that population estimate we will estimate a pelagic predator biomass and compare it the prey biomass (kokanee). We will also determine a population estimate for lake trout > 20.5" and investigate the impact of that population on the kokanee population. By the end of next quarter we will report whether or not the deep water trap nets are effective at removing lake trout from Lake Pend Oreille. We will also begin marking lake whitefish to determine movement patterns between nets. All of our work from March 2003 to February 2004 will be compiled into a draft annual report. Additionally, we will begin preparing for the 2004 spring sampling season.

Illustration by J.R. Tomelleri

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